

AMENDMENTS TO THE CLAIMS:

Please amend claims 15-19, 22-23, and 26-30, as shown below. This listing of claims will replace all prior versions and listings of claims in the Application:

Claim 1-6 (canceled)

Claim 7 (previously presented): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises two transistors having their gates directly connected together.

Claim 8 (previously presented): The variable drive current driver circuit according to claim 7, wherein

said control circuit controls whether said second bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said second bias current driven by said fourth current source flows from said push-pull circuits.

Claim 9 (previously presented): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors having their gates directly connected together.

Claim 10 (previously presented): The variable drive current driver circuit according to claim 9, wherein

said control circuit controls whether said second bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said second bias current driven by said fourth current source flows from said push-pull circuits.

Claim 11 (previously presented): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises two transistors having their gates directly connected together.

Claim 12 (previously presented): The variable drive current driver circuit according to claim 11, wherein

said control circuit controls whether said third bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said fourth bias current driven by said fourth current source flows from said push-pull circuits.

Claim 13 (previously presented): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein said control signal is independent of drain voltages of the first to fourth current source circuits and independent of an input signal.

Claim 14 (previously presented): The variable drive current driver circuit according to claim 7,

wherein said first bias current is a constant current.

Claim 15 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein once said second bias current is turned on said second bias current is a constant current.

Claim 16 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors,
and

wherein said control signal is independent of drain voltages of the first to fourth current source circuits and independent of an input signal.

Claim 17 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two ~~conductive~~ different types of transistors, and

wherein said first bias current is a constant current.

Claim 18 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein once said second bias current is turned on, said second bias current is a constant current.

Claim 19 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein said control signal is independent of drain voltages of the first to fourth current source circuits and independent of an input signal.

Claim 20 (previously presented): The variable drive current driver circuit according to claim 11,

wherein said first bias current is a constant current.

Claim 21 (previously presented): The variable drive current driver circuit according to claim 11,

wherein said second bias current is a constant current.

Claim 22 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

~~wherein said third current source circuit provides a constant current; and~~

wherein said control signal ~~determines a~~ turns on or off said third bias current provided by said third current source circuit, and once said third bias current is ~~determined~~ turned on, said third bias current is constant.

Claim 23 (currently amended): A variable drive current driver circuit comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein once said control circuit turns on said fourth bias current, said fourth current source circuit provides said fourth bias current as a constant current.

Claim 24 (previously presented): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for varying both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors having their gates directly connected together.

Claim 25 (previously presented): The variable drive current driver circuit according to claim 24, wherein

said control circuit controls whether said third bias current driven by said third current source flows to said pair of push-pull circuits, and

said control circuit controls whether said fourth bias current driven by said fourth current source flows from said push-pull circuit.

Claim 26 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having said first bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a second bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having said second bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said second bias current driven by said third current source circuit and said second bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein said control signal is independent of drain voltages of the first to fourth current source circuits and independent of an input signal.

Claim 27 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two ~~conductive~~ different types of transistors, and

wherein said first bias current is a constant current.

Claim 28 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two ~~conductive~~ different types of transistors, and

wherein said second bias current is a constant current.

Claim 29 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein once said control circuit turns on said third bias current driven by said third current source circuit, said third current source circuit provides said third bias current a constant current.

Claim 30 (currently amended): A variable drive current driver circuit, comprising:

a pair of push-pull circuits for driving a load circuit complementarily;

a first current source circuit for having a first bias current flow to said pair of push-pull circuits;

a second current source circuit for having a second bias current flow from said pair of push-pull circuits;

a third current source circuit capable of having a third bias current flow to said pair of push-pull circuits;

a fourth current source circuit capable of having a fourth bias current flow from said pair of push-pull circuits; and

a control circuit for ~~varying~~ turning on or off both said third bias current driven by said third current source circuit and said fourth bias current driven by said fourth current source circuit according to a control signal,

wherein each push-pull circuit comprises at least two conductive types of transistors, and

wherein once said control circuit turns on said fourth bias current, said fourth current source circuit provides said fourth bias current as a constant current.